

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Atty. Docket

GEREON VOGTMEIER ET AL

DE 010037

Serial No.

Group Art Unit

Filed: CONCURRENTLY

Ex.

Title: RADIATION SENSOR AND RADIATION DETECTOR FOR A COMPUTED
TOMOGRAPHY APPARATUS

Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

Prior to calculation of the filing fee and examination, please
amend the above-identified application as follows:

IN THE CLAIMS

Please amend the claims as follows:

3. (amended) A radiation sensor as claimed in claim 1,
characterized in that the light-sensitive and/or X-ray-sensitive
sensor elements are arranged in the form of a matrix on the
radiation sensor.

4. (amended) A radiation sensor as claimed in claim 1, characterized in that it is provided with a temperature sensor (12a, 12b) which includes a current mirror with two paths (T_3 - T_5 , T_4 - T_6), a respective bipolar transistor (T_1 , T_2) being provided in each of the two paths, the base of said bipolar transistor being short-circuited to the collector, the surface areas of said bipolar transistors being different and the current (I) in the current paths being approximately proportional to the temperature of the bipolar transistors.

6. (amended) A radiation detector as claimed in claim 4, characterized in that the difference between the emitter-base voltages of the bipolar transistors (T_1 , T_2) is determined by a coupling out circuit (A) so as to be delivered as an output voltage (V_{out}).

7. (amended) A radiation detector, notably an X-ray detector for a computed tomography apparatus, which detector is provided with at least one radiation sensor (10) as claimed in claim 1, as well as with an associated evaluation unit (13) for reading out and evaluating the output signals delivered by the radiation sensor.

9. (amended) A radiation detector as claimed in claim 7, characterized in that the radiation sensor (10) is provided with a temperature sensor (12, 12, 12b), and that the evaluation unit (13) is arranged in such a manner that it is capable of making a diagnosis concerning faults and/or ageing of the radiation sensor (10) on the basis of the temperature value measured by the temperature sensor.

10. (amended) An X-ray examination apparatus which is provided with a radiation detector, notably an X-ray detector, which includes at least one radiation sensor (10) as claimed in claim 1, as well as an associated evaluation unit (13) for reading out and evaluating the output signals delivered by the radiation sensor.

REMARKS

The foregoing amendments to the claims were made solely to avoid filing the claims in the multiple dependent form so as to avoid the additional filing fee.

The claims were not amended in order to address issues of patentability and Applicants respectfully reserve all rights they may have under the Doctrine of Equivalents. Applicants furthermore reserve their right to reintroduce subject matter deleted herein at a later time during the prosecution of this application or

continuing applications.

Respectfully submitted,

By 

Michael E. Marion, Reg. 32,266
Attorney
914) 333-9641

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APPENDIX

3. (amended) A radiation sensor as claimed in claim ~~1 or 2~~, characterized in that the light-sensitive and/or X-ray-sensitive sensor elements are arranged in the form of a matrix on the radiation sensor.

4. (amended) A radiation sensor as claimed in ~~at least one of the claims 1 to 3~~claim 1, characterized in that it is provided with a temperature sensor (12a, 12b) which includes a current mirror with two paths (T_3 - T_5 , T_4 - T_6), a respective bipolar transistor (T_1 , T_2) being provided in each of the two paths, the base of said bipolar transistor being short-circuited to the collector, the surface areas of said bipolar transistors being different and the current (I) in the current paths being approximately proportional to the temperature of the bipolar transistors.

6. (amended) A radiation detector as claimed in ~~claim 4 or 5~~claim 4, characterized in that the difference between the emitter-base voltages of the bipolar transistors (T_1 , T_2) is determined by a coupling out circuit (A) so as to be delivered as an output voltage (V_{out}).

7. (amended) A radiation detector, notably an X-ray detector for a computed tomography apparatus, which detector is provided with at least one radiation sensor (10) as claimed in ~~at least one of the claims 1 to 6~~claim 1, as well as with an associated evaluation unit (13) for reading out and evaluating the output signals delivered by the radiation sensor.

9. (amended) A radiation detector as claimed in claim 7 ~~or 8~~, characterized in that the radiation sensor (10) is provided with a temperature sensor (12, 12a, 12b), and that the evaluation unit (13) is arranged in such a manner that it is capable of making a diagnosis concerning faults and/or ageing of the radiation sensor (10) on the basis of the temperature value measured by the temperature sensor.

10. (amended) An X-ray examination apparatus which is provided with a radiation detector, notably an X-ray detector, which includes at least one radiation sensor (10) as claimed in ~~at least one of the claims 1 to 6~~claim 1, as well as an associated evaluation unit (13) for reading out and evaluating the output signals delivered by the radiation sensor.